

of potash, and especially of phosphoric acid, will make the tobacco coarse, dark, and late in maturing. If sufficient ammonia is not used, the tobacco will be small, thin and poor, although the colour may be good.

Potash, like ammonia, improves the yield and body of the leaf. This element should be much more liberally used, as soon as the price of it becomes normal, than has been the custom in the past.

Phosphoric acid should be used in good quantity as it increases growth and hastens maturity, and also strongly tends to brighten the colour because of its decided effect in ripening the leaf. On account of this effect, acid phosphate should be used liberally in the tobacco fertilizer on the better improved soils, which, from an accumulation of nitrogenous materials might tend to produce a dark, coarse leaf. It should not be used excessively on light, unimproved soils because on such soils there is a natural tendency to "firing," and such a tendency would be increased by an excessive application of acid phosphate, though increasing the ammonia supplied in the fertilizer or otherwise would help to overcome this difficulty and increase the growth. This largely explains why turning under a clover crop, or two or three tons of well-rotted stable manure on very sandy soils may sometimes result in positive benefit.

Potash and acid phosphate, as a rule, may be used freely on flue-cured tobacco without injury to the quality, but it requires a nice adjustment of the ammonia supply to give the best results. Ammonia in the soil comes almost entirely from decaying vegetable matter or manure, and the quantity to be used in the fertilizer should give due consideration to the amount that can be expected from sources in the soil.

Fertilizers for flue-cured tobacco should be applied in the row because with ordinary amounts better immediate effects are realized. When heavy applications are used in the row it should be thoroughly incorporated with the soil by running a small plough or double shovel with small teeth along the row before it is bedded, or applied two or three weeks before planting time.

Sulphate of potash, 50 per cent is recommended as the most desirable source of potash, 16 per cent acid phosphate as the most desirable source of phosphoric acid, and sulphate of ammonia, 24 per cent, or dried blood, 12 per cent ammonia (13 per cent nitrogen) as the most desirable source of ammonia for flue-cured tobacco.

From the results of co-operative fertilizer tests conducted on the Leamington sand type, which constitutes the majority of the flue-cured tobacco farms, the following amounts of fertilizers have given the best results in yield and profit when applied in the following amounts per acre:—

100 to 150 pounds of sulphate of ammonia.
400 to 500 pounds of 16 per cent acid phosphate.
100 pounds of sulphate of potash.

At normal pre-war prices an application of sulphate of potash at the rate of 200 to 250 pounds per acre would be profitable.

Soluble fertilizers, such as mentioned are recommended for quick-growing crops like tobacco because they are quickly and highly available for the plant. The high availability of soluble fertilizers is believed to be largely due to the fact that they dissolve in the soil water and spread over the surface of the soil particles before becoming insoluble, thus they offer a much more extensive surface for contact with plant roots than would food particles applied in insoluble form.

DOES TOBACCO EXHAUST THE SOIL?

This is a question often asked. It is true only when the crop is removed from the land without returning what is taken away. This practice will exhaust anything. It is true that tobacco requires plenty of easily available plant food in the soil because it is on the land for a short time, and makes a very rapid growth producing a comparatively large amount of dry matter. The subject should be considered from the